iUSP149 – Sports massage

URN – T/617/5620

Guided Learning Hours: 225

Learning outcome	Assessment criteria	Taught content to include
LO1 Know the roles and function of the energy systems in relation to physical activity and exercise	1.1. The learner will be able to explain the energy systems used during exercise	• Adenosine triphosphate (ATP – break down and re-synthesis, energy equation) • Energy systems (Phosphocreatine system, anaerobic lactic acid system, aerobic system) • Creatine phosphate system (high intensity activity of 6 – 10 seconds), e.g. 100 metre sprints, throwing, explosive events • Anaerobic lactic acid system (moderate to high intensity activity of up to 90 seconds), e.g. 400 metre sprints • Aerobic system (low to moderate intensity of above 90 seconds), e.g. long-distance events
	1.2. The learner will be able to explain the by-products of different systems	• By-products - Phosphocreatine system (adenosine diphosphate, phosphate, creatine, all by-products re-used) - Anaerobic lactic acid system hydrogen ions (acid) lactate - Aerobic system (metabolic water, carbon dioxide) - Associated significance of by-products in muscle fatigue (limitation of mechanical and biochemical muscle contraction processes, lactate threshold, onset of blood lactate accumulation (OBLA)
LO2 Know the structure and function of the muscular system	2.1. The learner will be able explain the characteristics of the types of muscle tissue	• Cardiac • Smooth • Skeletal
	2.2. The learner will be able to explain the principles of muscle contraction	• Gross muscle structure - Tendon (attach muscle to bone)

		- Epimysium - Perimysium - Endomysium - Fascicle • Cellular structure - Muscle fibres - Myofibrils - Myofilaments (actin, myosin) - Sarcolemma - Sarcomere • Sliding filament theory (myosin and actin, cross bridges, shortening of sarcomere) - Process (attachment of myosin to actin, power stroke, detachment, ATP and energy transfer) - Troponin - Tropomyosin - Calcium - Sarcoplasmic reticulum - Neurotransmitters - Synapse - Resting potential - Action potential - All or none law • Different skeletal muscle fibre types and their characteristics - Slow twitch oxidative type 1 ▪ Red in colour ▪ Low intensity ▪ Long duration/endurance ▪ High in mitochondria ▪ High in myoglobin ▪ Slow contraction speed ▪ Resistant to fatigue - Fast twitch or intermediate type 2a ▪ Pink or white in colour ▪ Intermediate contraction speed and rate of fatigue ▪ Adapt characteristics to training to become more like type 1 or type 2b fibres - Fast twitch type 2b

		▪ White in colour ▪ High intensity ▪ Short duration ▪ Low in mitochondria ▪ Low in myoglobin ▪ Fast contraction speed ▪ Fast to fatigue
	2.3. The learner will be able to explain the locations, origins and insertions of skeletal muscles	• Muscles of the back and neck - Erector spinae - Scalenes - Trapezius - Latissimus dorsi - Teres major - Sternocleidomastoid - Levator scapulae - Splenius capitis - Coracobrachialis - Rhomboids major and minor - Serratus anterior - Deltoid - Rotator cuff muscles ▪ Infraspinatus ▪ Supraspinatus ▪ Teres minor ▪ Subscapularis • Muscles of the arm, wrist and hand - Biceps - Triceps - Supinator - Pronator teres - Brachialis - Brachioradialis - Aconeus - Flexor carpi radialis - Flexor carpi ulnaris - Extensor carpi radialis brevis - Extensor carpi radialis longus - extensor carpi ulnaris - Flexor carpi radialis

		- Flexor digitorum - Extensor digitorum - Palmaris longus • Muscles of the hip, leg, ankle and foot - Gluteus maximus - Gluteus medius - Gluteus minimus - Iliacus - Psoas major - Iliopsoas - Piriformis - Tensor fascia lata - Iliotibial tract - Sartorius - Gracilis - Quadriceps: ▪ Rectus femoris ▪ Vastus lateralis ▪ Vastus intermedius ▪ Vastus medialis - Adductors: ▪ Brevis ▪ Longus ▪ Magnus - Hamstrings: ▪ Biceps femoris ▪ Semitendinosis ▪ Semimembranosis - Popliteus - Pectineus - Tibialis anterior - Tibialis posterior - Peroneus longus - Peroneus brevis - Gastrocnemius - Soleus - Achilles tendon - Flexor digitorum longus - Extensor digitorum longus

		• Muscles of respiration and abdominals - Pectoralis major - Pectoralis minor - Intercostal - Rectus abdominus - Internal obliques - External obliques - Quadratus lumborum - Transversus abdominus
	2.4. The learner will be able to describe the types of muscle actions	• Motive and resistive forces • Concentric • Eccentric • Isometric contractions

LO3 Know the responses of the nervous system to sport and exercise	3.1. The learner will be able to explain the effects of stress on muscles during sport	• 'Fear, Fight and Flight': - Adrenal cortex and medulla stimulated to secrete adrenaline - Increase blood to the muscles - Liver stimulates secretion of glucose for anaerobic energy production - Salivary glands vasoconstrict - Pupils dilate - Digestive system slows down preventing energy wastage - 'Butterflies'
	3.2. The learner will be able to explain the changes to the nervous system that occur during sport and exercise	• Change in motor units – stimulation dependant on number of motor units contracting • 'Fear, Fight and Flight' • Hypothalamus stimulates the sympathetic nervous system and the endocrine system – adrenaline • Cardiorespiratory system speeds up • Blood is diverted to the muscles • Digestive system slows down preventing energy wastage • Liver secretes glucose for anaerobic energy production • Salivary glands vasoconstrict • Pupils dilate • 'Butterflies'

LO4 Know the anatomy and physiology of major joints of the body	4.1. The learner will be able to describe in detail joint structures	• Synovial joints • Cartilage – articular (hyaline) • Ligaments • Synovial membrane • Bursa
	4.2. The learner will be able to explain the anatomy and physiology of major joints of the body	• Atlanto-occipital • Atlanto-axial • Glenohumeral • Sternoclavicular / acromioclavicular • Elbow • Wrist • Hand • Hip • Sacroiliac • Knee • Ankle • Foot

LO5 Know the effects of anatomy, physiology and pathology on human function	5.1. The learner will be able to explain the possible stresses and strains put on the spine and other joints in sporting activities	• Inflexibility • Lifting techniques • Postural techniques • Stress • Environment • Injury
	5.2. The learner will be able to explain the possible causes and effects of the following diseases and disorders and their effect on specific sports	• Osteoarthritis • Rheumatoid arthritis • 'Shin splints' • Stress fractures • Facet joint pain • Carpal tunnel syndrome • Rotator cuff injuries • Chondromalacia patellae • Calcaneal bursitis • Periostitis • Concussion

		• Cramp • Stitch • Chronic muscle fatigue • Sprain • Strain • Lateral epicondylitis • Medial epicondylitis • Adhesive capsulitis • Dislocation • Fractures • Ruptured muscles • Jogger's nipple • Torn cartilage • Fibrositis • Fibrosis • Impingement • Muscle soreness • Atony • Atrophy • Fasciitis • Myositis • Tendinitis • Spasm • Soft tissue injuries • Exercise induced asthma • Diabetes • Hay fever • Hyperventilation • Osteoporosis • Low back pain • Heartburn • Irritable bowel syndrome • Haemorrhoids • Hernias • Amenorrhoea • Heat stroke • Heat exhaustion

		• Kidney stones • Dehydration • Torticollis • Myalgia • Myotonia • Black toe nails • Runner's knee • Plantar fasciitis • Osgood Schlatters • Compartment syndrome
	5.3. The learner will be able to explain the possible damage to the skin as a result of sporting activities on different types of surfaces, with regard to clothing, shoes, exposure to the sun, wind and other elements	• Blisters • Grazes • Sores • Open wounds e.g. lacerations • Puncture wounds • Abrasions • Gravel burns • Sun burns • Wind burns • Bruising • Surfaces include: - Grass - Gravel - Astroturf - Stone - Wood

LO6 Know the principles of injury prevention and management	6.1. The learner will be able to explain the principles of injury prevention and management	• Intrinsic/personal: - Age - Sex - Somatotype - Biomechanics • Fitness: - Muscle balance - Physical symmetry - Joint integrity - Motor skills

		- Psychological factors • Extrinsic/environmental: - Organisation and management - Type of sport - Training errors - Environment - Equipment
	6.2. The learner will be able to explain the preventative and rehabilitative training to reinforce massage treatments	• Passive • Active • Resistive forms of exercise and the frequency and duration of each • Intensity • Use of free weights and/or resistive bands where appropriate • Importance of warm up/cool down
	6.3. The learner will be able to explain the effects and benefits of stretching	• Mental relaxation • Muscular relaxation • Increased flexibility • Improved posture • Prevention of lower back pain • Improved fitness • Relief of muscle soreness • Relief of cramp • Improved motor skills • Prevention of injury
	6.4. The learner will be able to explain the use of stretching massage movements	• Connective tissue massage (CTM) • After injury • Muscle reflexes preventing stretching overload
	6.5. The learner will be able to explain the techniques of thermotherapy and cryotherapy (ICER) and the rationale for choice	• Define thermotherapy to include the use of: - Heat pad - Hot compress for pain relief - Increased elasticity of collagen fibres • Define cryotherapy to include the use of: - Ice for relief of pain - Constriction of blood vessels - Reduction of swelling - Reduction of metabolism - Reasons for contrast bathing

		- The benefits of self-treatment
	6.6. The learner will be able to explain and demonstrate heat sensitivity tests	• The use of alternating hot and cold test tubes on the appropriate part of the body

LO7 Know the principles of training and components of fitness	7.1. The learner will be able to explain the components of fitness	• Cardiovascular • Muscular • Flexibility • Skills related fitness
	7.2. The learner will be able to explain the principles of training	• FITT principles • Specificity • Overload • Reversibility • Adaptability • Individuality • Recovery time
	7.3. The learner will be able to explain the principles of over training	• Definition of overtraining • Persistent muscle soreness • Loss of co-ordination • Prolonged fatigue • Dizziness • Performance inconsistency • Elevated resting heart rate • Tightness in the chest • Heat stress

LO8 Know the principles of soft tissue dysfunction	8.1. The learner will be able to explain the stages of the healing process and the possible treatments available	• Acute/inflammatory phase • Repair phase • Remodelling phase
	8.2. The learner will be able to explain the signs and symptoms of inflammation	• Increased temperature • Redness • Swelling • Pain • Loss of function
	8.3. The learner will be able to describe scar tissue and adhesions	• Define scar tissue • Define adhesions

LO9 Be able to carry out assessment for sports massage	9.1. The learner will be able to explain and demonstrate methods of consultation	• Students should demonstrate knowledge of the importance of the following: - Private comfortable area - Positive body language - Positioning of the client (no barriers between themselves and client) - Good communication skills (asking open and/or closed questions where appropriate) - Trust - Professionalism, confidence and enthusiasm - Confidentiality - Any contra-indications to treatment - Client profile - Importance of planning a treatment programme bearing in mind the clients religious, moral and social beliefs - Determining the nature and extent of the client's needs - Agreement to the course of action - Ascertain the clients consent to the treatment (where the client is not in a position themselves ascertain from the appropriate companion's agreement to the treatment) - Explanation of any possible side effects to the treatment - Explanation how the programme will be evaluated and the review process - Where applicable clarify with the client information, which may be available to other, e.g. relevant health care workers - Obtain the client's signature (or that of the companion) - Physical examination including: ▪ Head ▪ Shoulders ▪ Back ▪ Pelvis ▪ Legs ▪ Feet ▪ Body alignment/posture ▪ Range of motion/joint function ▪ Comparison of strength of the muscles on each side of the body ▪ Muscle definition

		▪ Active, passive and resisted movement ▪ Palpation
	9.2. The learner will be able to explain and demonstrate how to record information and store in a safe place and secure manner	• Any contra-indications • Area treated • Type of injury • Treatment given • Any reactions • Any exercises given • Home care treatment
	9.3. The learner will be able to explain and recognise contra-indications to sports massage with reasons why and when to refer to other health professionals	• Pregnancy • Cardiovascular conditions - Thrombosis - Phlebitis - Hypertension - Hypotension - Heart conditions • Haemophilia • Any condition already being treated by a GP or another health professional, e.g. physiotherapist, osteopath, chiropractor or coach • Medical oedema • Osteoporosis • Arthritis • Nervous/psychotic conditions • Epilepsy • Recent operations • Diabetes • Asthma • Any dysfunction of the nervous system (e.g. Multiple sclerosis, Parkinson's disease, Motor neurone disease) • Bell's palsy • Trapped/pinched nerve (e.g. sciatica) • Inflamed nerve • Cancer • Postural deformities • Spastic conditions • Kidney infections

		• Whiplash • Slipped disc • Undiagnosed pain • When taking prescribed medication • Acute rheumatism • Contra-indications that restrict treatment: - Fever - Contagious or infectious diseases - Under the influence of recreational drugs or alcohol - Diarrhoea and vomiting - Skin diseases - Undiagnosed lumps and bumps - Localised swelling - Inflammation - Varicose veins - Pregnancy (abdomen) - Cuts - Bruises - Abrasions - Scar tissues (2 years for major operation and 6 months for a small scar) - Sunburn - Hormonal implants - Abdomen (first few days of menstruation depending how the client feels) - Haematoma - Hernia • Recent fractures (minimum 3 months) • Cervical spondylitis • Gastric ulcers • After a heavy meal
	9.4. The learner will be able to explain and demonstrate the skills of palpation and physical examination compared with pre-massage states	• Passive, active and restricted movement • Range of movement • Degree of swelling • Variations in tissue temperature • Muscle tone and bulk • Adhesions • Previous injury to the area

		• Fatty nodules

LO10 Be able to demonstrate professional practice in sports massage	10.1. The learner will be able to explain and ensure appropriate client care, client modesty and the correct use of towels at all times	• Checking consultation and contra-indications - Explaining the treatment to the client - Helping the client onto the couch/seat protecting the client's modesty at all times - Ensure that all parts of the client are covered except the area being massaged - Cleanse the feet with a medi-wipe or similar - Wash own hands - Keep ensuring that the client is comfortable - Remove the massage medium at the end of the treatment if appropriate - Help the client off the couch/seat protecting their modesty at all times
	10.2. The learner will be able to explain and demonstrate correct hygiene procedures	• The most efficient form of sterilisation: - In the sports clinic - In situ at a sports event - the best form of waste removal (particularly when contaminated): - In the sports clinic - In situ at a sports event - Reasons for good personal hygiene - Wash own hands - Wipe the client's feet - Use clean towels for each client - Put couch roll on top of towels - Wear clean white professional work wear - Socks/tights and full flat shoes - Remove all jewellery (except wedding band) from self and client - No nail enamel - Clean short nails - Hair tied back off collar and face
	10.3. The learner will be able to explain and demonstrate the ability to ensure client is in a suitable position of comfort and support for different techniques	• Use appropriate supports e.g. under the ankles, chest, forehead, knees, head, or wherever a support is appropriate for the sports massage movement

	applied to different parts of the body and range of conditions	
	10.4. The learner will be able to explain and demonstrate the application and removal of the medium if required, appropriately and professionally	• Ensure the massage medium is removed at the end of the treatment if required • Do not let the client walk around in bare feet • Ensure all surfaces are lined with couch roll • Wipe couch and trolley with surgical spirit or similar at the end of each day

LO11 Know the effects and benefits of sports massage	11.1. The learner will be able to explain the effects of massage on muscle and other soft tissue	• Speeds up healing of damaged tissues and muscles • Increases fitness capabilities • Increases performance potential • Prevents future injury • Helps clear out waste and toxins • Breaks up adhesions • Enables faster healing • Improves flexibility • Enables peak performance to be achieved more rapidly
	11.2. The learner will be able to explain the reasons for selecting the appropriate type of massage movement according to the client's conditions and needs	• Effleurage • Petrissage • Frictions • Tapotement • Vibrations • Specific sports massage techniques
	11.3. The learner will be able to explain specific sports massage techniques	• Treatment of injury • Pre-event • During/Between event • Post event • Corrective • Preventative • Conditioning massages

LO12 Be able to demonstrate sports massage techniques	12.1. The learner will be able to explain and demonstrate the classical massage movements where appropriate	• Effleurage • Petrissage • Frictions • Tapotement • Vibrations • Specific sports massage techniques • Movements should be performed correctly and on areas appropriate for the injury and the client's needs
	12.2. The learner will be able to explain and demonstrate sports massage techniques according to the client's condition and needs	• Manual lymphatic drainage • Neuro-muscular technique (NMT) • Muscle energy technique (MET) • Soft tissue release (STR) • Connective tissue massage (CTM) • Proprioceptive neuromuscular facilitation (PNF)
	12.3. The learner will be able to explain and demonstrate how common sports injuries can be treated after medical approval	• Shin splints • Iliotibial band release (Runner's knee) • Muscle fatigue • Lateral epicondylitis • Medial epicondylitis • Soft tissue injuries • Sprains • Rotator cuff injuries • Strains • Muscle soreness • Cramp • Myositis • Spasm • Stitch • Fibrositis • Fibrosis • Atony • Atrophy • Hyperventilation • Low back pain • Carpal tunnel syndrome • Calcaneal bursitis

		• Chondromalacia patellae • Adhesive capsulitis • Torticollis • Tendinitis of any muscle including: - Achilles - Flexor - Biceps - Supraspinatus - Subscapularis - Tibialis anterior • Superficial skin wounds including: - Blisters - Grazes - Sores - Open wounds e.g. lacerations - Puncture wounds - Abrasions - Gravel burns - Sun burn - Wind burn

LO13 Be able to carry out post massage treatment protocols	13.1. The learner will be able to explain and provide feedback and reassurance to the client	• At the end of each treatment the client's feelings and any skin or other reactions should be recorded • The following areas should be monitored: - Outcomes achieved - Effectiveness of the treatment - Any change in demands - Whether the treatment met the needs of the client - Longer term needs of the client • Encourage clients to express their feelings/requirement during the treatment • Note client's reactions and make appropriate adjustments
	13.2. The learner will be able to explain and advise on the use, application and benefits of self-treatment	• Thermotherapy • Cryotherapy • Rehabilitative training

Assessment	
Portfolio of evidence containing: • 15 treatment evidence 5 clients must be treated 3 times each Practical examination MCQ	• Consultation including thorough medical history and general lifestyle • Client profile (to include any current issues in their life) • Rationale for the choice of treatment • Details of how the therapist conducted the treatment • Details of how the client felt during and after the treatment • Details of home care advice given • The following should also be documented for treatments 2 and 3: - The consultation should be checked and any changes noted - Rationale for the choice of treatment - Details of how the therapist conducted the treatment - Details of how the client felt during and after the treatment - Details of home care advice given - An overall conclusion of the case should be recorded - Reflective practice after each treatment - Signed by client

Guide to taught content
The content contained within the unit specification is not prescriptive or exhaustive but is intended to provide helpful guidance to teachers and learners with the key areas that will be covered within the unit, and, relating to the kinds of evidence that should be provided for each assessment objective specific to the unit learning outcomes.

Document History

Version	Issue Date	Changes	Role
v1	16/08/2019	First published	Qualifications and Regulation Co-ordinator